

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In The Matter Of)	
)	
)	
Schools and Libraries Universal Service)	CC Docket No. 02-6
Support Mechanism)	
)	
A National Broadband Plan)	GN Docket No. 09-51
For Our Future)	

**COMMENTS OF EDUCAUSE, INTERNET2,
NATIONAL LAMBDARAIL AND THE QUILT**

EDUCAUSE,¹ Internet2,² National LambdaRail (NLR)³ and The Quilt⁴ (hereinafter “R&E Network Community”) are pleased to submit these comments in this proceeding to improve and modernize the E-rate program.⁵ The R&E Network Community collectively serves tens of thousands of schools, libraries, and other community anchor institutions across the country with high-capacity telecommunications and broadband services.

I. Introduction

The E-rate program, first established 1997, has dramatically improved the Internet capabilities of schools and libraries, enhancing educational achievement and our nation’s competitiveness. As the Commission notes, nearly 100% of schools have Internet access, and 97% of these schools

¹ EDUCAUSE is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. EDUCAUSE represents the IT professionals in over 2200 colleges, community colleges, universities and educational organizations. (www.educause.edu)

² Internet2 is an advanced networking consortium representing over 200 research universities. Led by its members and focused on their current and future networking needs since 1996, Internet2 blends its unsurpassed human, IP and optical networks to develop and deploy revolutionary Internet technologies. (Internet2.edu).

³ National LambdaRail (NLR), owned and operated by the U.S. research and education community, is one of the world’s most advanced networks, providing 12,000 miles of high-performance optical fiber coast to coast, capable of speeds up to 100 Gigabits per second.

⁴ The Quilt is a coalition of 28 advanced regional network organizations. Founded in 2000, The Quilt is a non-profit collaboration of our country’s most advanced regional and state networks in support of research and education. (www.thequilt.net).

⁵ See, *In the Matter of Schools and Libraries Universal Service Support Mechanism, A National Broadband Plan for Our Future*, CC Docket No. 02-6, GN Docket No. 09-51, FCC 10-83 (rel. May 20, 2010) (“Notice”).

have broadband connections.⁶ The percentage of schools with Internet access doubled from 50% in 1995 to almost 100% by 2005.⁷ Similarly, public library Internet connectivity jumped from 20.9 percent in 1994 to 99.1 percent in 2008⁸. The E-rate program helps prepare students for college, further academic studies, and careers in research.

It is appropriate for the FCC to consider how to fine-tune the program, 13 years after its inception. The landscape has changed in many ways:

- The initial focus of the E-rate program was to assist schools and libraries to acquire a single Internet connection, typically a dial-up connection. Today, the focus is on acquiring high-capacity broadband Internet connectivity to meet the demands of tens or hundreds of computers at a single location.
- Non-profit national and state R&E networks (many of which were just organizing 13 years ago) are now widespread, using a successful model of aggregating traffic, negotiating bulk discounted rates, and taking maximum advantage of fiber-based networking.
- The economic recession and challenging fiscal environment situations both increase the demand for Internet services and also make it more difficult than ever for state and local governments to come up with the funding to upgrade broadband connections for schools and libraries.

As recognized by the National Broadband Plan (NBP), the E-rate program must be forward-thinking: it must be designed to prepare our nation's schools and libraries for the future by encouraging the deployment of "future-proof" technologies, the sharing of network services, the aggregation of traffic, and the elimination of silos or barriers that hinder network efficiencies.

⁶ The National Center for Education Statistics (NCES) found nearly 100 percent of public schools in the United States had Internet access, and 97 percent of these schools used broadband connections to access the Internet. "Internet Access in U.S. Public Schools and Classrooms: 1994-2005," U.S. Dept. of Education, Institute of Education Sciences, NCES 2007-020, at 4-5 (NCES Study), available at <http://nces.ed.gov/Pubsearch/pubsinfo.asp?pubid=2007020>.

⁷ http://nces.ed.gov/programs/digest/d09/tables/dt09_425.asp?referrer=report.

⁸ "Public Libraries and the Internet 2008-2009: Issues, Implications and Challenges," by John Carlo Bertot, Paul J. Jaeger, Charles R. McClure, Carla B. Wright, and Elise Jensen, November 2009, available at <http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2700/2351>.

II. Discussion

A. The FCC should explicitly allow non-profit R&E networks to participate in the E-rate program to provide all eligible E-rate services.

One of the most important steps that the Commission can take to improve the efficiency of the E-rate program is to allow non-profit R&E networks to participate in the E-rate program for all eligible E-rate services (including dark fiber, “lit” fiber, and all other telecommunications, broadband and information services).

The NBP explicitly and repeatedly recommends that federal and state policies should facilitate the “use of state, regional and local networks when that is the most cost-efficient solution for anchor institutions to meet the connectivity needs.”⁹ The Plan goes on to note that

Today, . . . R&E networks provide high-speed (10 Mbps-1 Gbps) connectivity to 66,000 community anchor institutions. But more can be done—it is estimated that only one-third of anchor institutions have access to an R&E network today. This model should be expanded to other community institutions.¹⁰

While several of the regional and state networks date back decades, many did not exist when the Telecommunications Act of 1996 was enacted. Internet2 was founded in 1996 by 34 universities and by 1999 had built a 10,000 mile nationwide backbone network. Today, Internet2 provides a next-generation, nationwide 100 gigabit-per-second network and has over 330 member institutions.¹¹ NLR was founded in 2003; today it owns and operates a network spanning 12,000 miles and providing 100 gigabit-per-second service, creating a national test-bed for cutting-edge advances in digital communications.¹² The R&E networking community has grown rapidly. Over 30 states now have their own non-profit research and education networks providing high capacity connections to local anchor institutions. All these R&E networks are based on a successful model – they operate as non-profits and provide a full suite of services necessary to meet the connectivity needs of colleges, universities and community anchor institutions. For instance, R&E networks typically:

⁹ *Id.*

¹⁰ NBP, p. 154. See also: “For instance, the FCC should remove barriers to the shared use of state, regional, Tribal, and local networks by schools, libraries and health care providers when such networks provide the most cost-efficient choice for meeting broadband needs. Because community anchor institutions are large—if not the largest—potential consumers of broadband in even the smallest of towns, adopting these recommendations will not only expand broadband options for the institutions themselves but also will improve availability in the community as a whole.” *Id.*

¹¹ See, <http://www.internet2.edu/resources/AboutInternet2.pdf>.

¹² See, http://newsroom.cisco.com/dlls/2010/ts_050310.html.

- offer more affordable rates;
- offer design and engineering services;
- offer network services that are specifically designed to meet the needs of anchor institutions, such as virtual private networks;
- offer monitoring, immediate maintenance and repair;
- offer web-hosting and e-mail services;
- offer collocation for back-up data storage and data recovery;
- offer professional training and development;
- build a community of support and education.

It is important to understand that raw bandwidth is not sufficient to ensure that the connectivity needs of a school or library are met. The power of the Internet is radically changing how services are developed and deployed. Providing “big pipes” to an end user does not necessarily guarantee the delivery of high-end applications. There are many factors beyond raw bandwidth. For example, an improperly configured router or a firewall can affect performance and act as a network bottleneck. Providing adequate connectivity requires a certain degree of network openness, the availability of performance data to monitor the network, and remote troubleshooting. R&E networks specialize in developing researching tools and technologies that can help find and resolve traffic management issues to maximize the performance of high-speed connections.

Unfortunately, the E-rate program does not support the full suite of services offered by non-profit R&E networks. When the Commission first established the E-rate program in 1997, it indicated that it wanted to allow non-telecommunications carriers to participate in the E-rate program.¹³ Nonetheless, the E-rate rules do not permit non-telecommunications carriers to receive E-rate support for “telecommunications services.”

The statutory language supports allowing non-common carriers to provide telecommunications services under the E-rate program. For instance, section 254(h)(2) directs the FCC to establish “competitively neutral rules” to enhance the provision of advanced telecommunications and information services for schools, health care providers and libraries. While section 254(h)(1)(B) places a requirement on “telecommunications carriers” to provide discounted service to schools and libraries, nothing in that section prevents the FCC from authorizing non-telecommunications carriers to provide these discounted service as well.

¹³ “We also share the Joint Board's preference that we foster competition from non-telecommunications carriers. We, therefore, encourage those providers to enter into partnerships or joint ventures with telecommunications carriers. In addition, pursuant to sections 254(h)(2) and 4(i), we extend support for the provision of discounted services by non-telecommunications carriers, within the overall annual cap mentioned above.” In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, 1st Report and Order, 12 FCC Rcd 8776, 9002 ¶ 425 ((1997).

For these reasons, the R&E Network Community suggests that the FCC adopt the following changes to the E-rate program:

1. Widen the scope of who may provide transport (“telecommunications”) services to include all broadband providers, including R&E networks. All broadband providers should be eligible to receive reimbursement as a transport provider, as a consortium manager, or both.
2. Transport providers should not be required to be classified as common carriers to be eligible for E-rate support. Any type of “lit” service by any type of provider should be considered an eligible service under E-rate.
3. Furthermore, the Commission should clarify that the total cost of elements that make up transport services provided over “owned” dark fiber should be E-rate eligible.
4. Allow R&E networks to provide E-rate-eligible network management, fiber management, and similar network-based services to schools and libraries that either have bought or leased E-rate-eligible optical fiber resources and who want to outsource the operation and management of these optical resources.

B. Dark Fiber should be treated as an eligible service from ANY provider (including R&E networks).

The Commission specifically proposes to allow dark fiber to be added to the eligible services list in the E-rate program. The R&E Network Community supports the addition of dark fiber to the list, and further suggests that the FCC clarify that dark fiber can be provided by any provider, including a non-profit R&E network provider.

While the R&E Network Community supports the addition of dark fiber, it asks for one clarification of the Commission’s proposal. The Notice suggests that *leased* dark fiber should be eligible for the E-rate program; we respectfully suggest that both *leased* and *owned* dark fiber should be eligible. This is consistent with the National Broadband Plan, which recommends that E-rate applications should be able to lease or **lease/own** dark fiber.¹⁴ Since dark fiber can be upgraded simply by adding electronics to the end points of the fiber, it may often benefit the school or library to own the fiber outright, or engage in a long-term IRU that often equates to ownership. Ownership of the dark fiber can reduce expenses and provide a stable long-term platform for connectivity. If leased dark fiber is permitted but ownership is not permitted under the E-rate rules, there is a risk that some schools and libraries may be incited to engage in

¹⁴ “Applicants should be able to acquire the lowest-cost broadband service, whether it is a fully leased or a mixed lease/own solution.” See, National Broadband Plan, p. 237.

leases to receive the discount, even if a lease is more expensive. We recommend that the FCC explicitly endorse the lease and/or ownership of dark fiber, as this will allow E-rate applicants even greater flexibility to obtain the best and most efficient level of broadband connectivity.

C. The Commission should clarify the E-rate program to encourage E-rate eligible entities (schools and libraries) to share networks with non-E-Rate eligible entities.

Schools and libraries have many characteristics in common with other community anchor institutions that are not E-rate eligible, such as state and local government offices, health care providers, museums, public safety providers, public media, and others. All these entities have heavy demands for broadband and Internet services, often aggregate traffic from multiple users, often require advanced levels of security, etc. The experience of the R&E Network Community is that sharing broadband network services often benefits all of these entities – indeed, that is the model that has allowed the R&E community to succeed. Rather than taking a “silo-based” approach to bandwidth (in which each sector has its own unique and sometimes duplicative network), public policy should encourage network sharing by all these anchor institutions to maximize efficiencies, lower costs and increase productivity.

For this reason, the R&E Network Community urges the Commission to spell out how E-rate participants may lawfully acquire shared network capacity and services along with those who are not E-rate eligible. We are not asking that these other anchor institutions should be eligible for E-rate support; the program is already straining to meet the needs of the current eligible applicants. Rather, we urge the FCC to set forth the cost allocation rules, or other policies, in advance so that anchor institutions can plan and work together to maximize their network efficiencies.

This is particularly important for broadband stimulus funds being granted to projects that extend existing R&E networks. These include projects involving state R&E networks such as those in Michigan, Pennsylvania, North Carolina, Utah, Louisiana, Maine, Virginia, and Indiana as well as others, and the pending creation of the Unified Community Anchor Network (UCAN). The National Telecommunications and Information Administration (NTIA) announced on July 2, 2010, that the Internet2/NLR consortium has been approved to receive a grant of \$62.5 million to create the U.S. UCAN to provide advanced networking services to 100,000 anchor institutions.¹⁵ Through these BTOP funded projects, R&E networks will continue their missions of serving community anchor institutions, designing enhanced network services to serve the needs of additional anchor institutions, and developing broader consortiums of these institutions at the national, state and local level. Clarification of the application of E-rate rules to these consortia

¹⁵ See, http://www2.ntia.doc.gov/files/WH_Broadband_Award_Roster.pdf.

will be enormously valuable to the R&E Network Community as we work to implement these BTOP grants under the relatively tight three-year timeline that applies to these grants.

In particular, the Commission should clarify how the E-rate eligible institutions in such consortia may qualify for E-rate discounts on their allocated shares of community anchor network costs, including build-out, telecommunication and Internet access services. We encourage the Commission to direct the Universal Service Administrative Company (USAC) to review and revise its

- Cost Allocation Guidelines for Products and Services
- Cost Allocation Guidelines for Consortia Comprising Both Eligible and Ineligible Entities
- Ancillary Use of Ineligible Components

For example, the "Consortia" guideline requires that cost allocation, and hence fee-setting, must be based on an actual or estimated relative "usage" measure.¹⁶ But some community anchor network business models want to sell a fiber service with a stated maximum capacity for an annual fee and no usage cost component (or measurement). Questions are likely to arise about how to engage in cost allocation when there is no ability to measure the relative usage among eligible and non-eligible users. The Commission may want to consider an appropriate replacement for "estimated relative usage measure" for shares of a fiber-based community anchor network.

D. The Commission should streamline the E-rate application process to reduce the complexity of applying for E-rate funds.

1. Technology Plans are Unnecessary

The R&E Network Community strongly supports the effort to reduce the complexity of the E-rate application process. While we certainly understand the need to prevent waste, fraud and abuse of the support, some of the E-rate application requirements duplicate already existing requirements and create unnecessary burdens on E-rate applicants.

For instance, the requirement to have a state approved technology plan for Priority 1 applications is overly burdensome and unnecessary. Most schools and libraries must already develop technology plans for their local governments or other state and federal programs.¹⁷ Requiring

¹⁶ See, <http://www.universalservice.org/sl/applicants/step06/cost-allocation-guidelines-consortia-comprising.aspx>.

¹⁷ We understand, for instance, that many schools are already required to prepare technology plans to receive funding through the Enhancing Education through Technology program.

applicants to obtain state approval of a technology plan, and requiring this plan to be filed with the Commission, adds additional hurdles that are time-consuming and costly.

The *Notice* suggests that it might continue to require technology plans for larger school and library projects over a certain dollar amount. This proposal raises concerns that different rules will apply to different applicants, which may increase, rather than decrease, the complexity of the application process. We respectfully suggest that it would be easier to eliminate the requirement to file a technology plan altogether for Priority 1 services. Schools and libraries already have an incentive to find the best, lowest-cost and most efficient technology that will work for them. They already face oversight from their local and state governments, which require them to operate efficiently. We are not aware that USAC staff conducts a detailed review of these technology plans. Even if they do review them, it is unlikely that the USAC officials could make a better judgment about the value of the technology plan than the school or library itself.

2. Barring schools and libraries from board positions would be counter-productive.

The R&E Network Community strongly opposes the proposed prohibition on applicant employees or board members serving on any board of any type of telecommunications, Internet access, or internal connections service provider that participates in the E-rate program in the same state. R&E networks are unique in that their bylaws and governance structures call for their Boards to include these types of members. This proposal has the potential to dictate the governance of the R&E networking organizations. We feel this is neither the FCC's intent nor goal. Practically speaking, the directors for R&E networking organizations approve annual budgets and standard fees for a large, diverse group of eligible and ineligible institutions. Their Board activity does not advantage their eligible employers in terms of undue changes to E-rate quotes for services. If the Commission follows through on this proposal, it will need to consider a class of exemptions for R&E organizations.

III. Conclusion

The R&E Network Community supports the E-rate program for its success in improving the Internet capabilities of schools and libraries across the country. Allowing non-profit R&E networks to participate in the E-rate program for “lit” telecommunications services, and making dark fiber eligible for support, will bring enormous benefits to the school and library communities and will make more efficient use of the limited E-rate funds. The other changes proposed in the comments above – promoting the sharing of networks, eliminating “silos” among anchor institutions, eliminating the requirement to file technology plans– will significantly improve the effectiveness of the E-rate program.

Respectfully Submitted,

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